Recent Laboratory Evidence of Benefits From Injection Therapy for Pollinosis

While injection therapy for pollinosis is widespread, scientific proof of efficacy has been difficult to obtain in purely clinical studies because of the subjective nature of symptom reporting and the known beneficial effects of placebo therapy. Recent refinement of the technique of *in vitro* histamine release from peripheral blood leukocytes of allergic persons on exposure to specific allergens provides a means to quantitate and manipulate a process believed to be one necessary step in the development of allergic symptoms *in vivo*.

Grass extract, whole ragweed extract, and the antigen E fraction of ragweed extract have been studied. Following immunotherapy of several months' duration there is significant decrease in the percent of total histamine released by leukocytes on exposure to the corresponding allergen. This leukocyte unresponsiveness parallels a fall in reaginic antibody titer and a rise in blocking antibody levels, and closely correlates with clinical improvement. The profound fall in leukocyte responsiveness cannot be explained solely by the relatively lesser drop in reagin titer; the concomitant rise in serum IgE blocking antibody titer seems to be crucial to clinical improvement.

V. MARINKOVICH, M.D

REFERENCES

Levy DA, Lichtenstein L, Goldstein EO, et al: Immunological and cellular changes after treatment of pollen allergy in children (Abstract No. 24—American Academy of Allergy Meeting, February 14-18, 1970, New Orleans). J Allergy 45:110, 1970

Lichtenstein LM, Norman PS, Winkenwerder WL: Clinical and *in vitro* studies on the role of immunotherapy in ragweed hay fever. Amer J Med 44:514-524, 1968

The Use of Disodium Cromoglycate In the Treatment of Asthma

"INTAL®," disodium cromoglycate (DSC), a product of Fison's Pharmaceuticals of England, has been on the market for three years in England, Australia and other countries. It is still under investigation in the United States.

This drug, an odorless white powder, is used in the prevention of asthma attacks by a mechanism *not* available in other forms of medication—it is not a bronchodilator, an anti-inflammatory agent, steroid, or antihistamine, but prevents the release of histamine from mast cells.

Twenty milligrams of the drug is given by power inhalation in a special "spinhaler" four times a day. Most clinical trials have reported unequivocal subjective benefit in one-third to one-half of patients with extrinsic asthma. Many patients have been able to decrease their regular doses of bronchodilators, steroids and sympathomimetic inhalors. There have been no reported serious side effects.

Exercise-induced asthma and inhalation-challenge asthma can also be successfully blocked by previous treatment with DSC.

The drug is not effective for treating the acute attack of asthma.

JAMES R. CRISP, M.D.

REFERENCES

Cox JSG: Disodium cromoglycate—A specific inhibitor of reagenic-antibody-antigen mechanisms. Nature 216:1328-1329, 1967

Chen JL, Moore N, Norman PS: Disodium cromoglycate—A new compound for the prevention of asthma. J Allergy 43:89-100, 1969

Lopez M: A controlled study of disodium cromoglycate in the treatment of asthma. J Allergy 44:118-121, 1969

Immunoglobulin E in Allergic Disease

Reaginic antibodies responsible for immediate type hypersensitivity reactions including classical allergic symptoms have been assigned to a new class of immunoglobulin designated IgE or γE. Present in everyone from shortly after birth, the serum concentrations of IgE slowly increase throughout life. Normal adult sera have a mean level of 0.3 micrograms per ml with a range of 0.1 to 1.4.

Atopic persons have a tendency to higher levels when compared with age-matched controls, but there is considerable overlap. Serum concentrations have been shown to be elevated in a variety of conditions without concomitant allergic symptoms. These include visceral larva migrans syndrome, ascaris infestation and, in lower frequency, celiac disease and Laennec's cirrhosis.

Allergic symptoms are most likely due to the synthesis of IgE antibodies specific for prevalent

allergens, rather than to a heightened capacity for IgE synthesis. The conditions which lead to specific IgE antibody synthesis remain obscure, but definition of the IgE class of immunoglobulin promises to aid research on this question.

V. MARINKOVICH, M.D.

REFERENCES

Berg T, Johnsson SGO: IgE concentrations in children with atopic diseases. Int Arch Allergy 36:219-232, 1969

Heiner DC, Rose B: Elevated levels of IgE in conditions other than classical allergy. J Allergy 45:30-42, 1970

The Use of Immune Serum Globulin (Gamma Globulin)

Immune serum globulin or pooled human gamma globulin (Cohn Fraction II) is of proved value in the prophylaxis of measles and infectious hepatitis and in the therapy and prophylaxis of infections in hypogammaglobulinemia. A dose of 0.02 ml per kg of body weight is usually sufficient for the prophylaxis of measles or infectious hepatitis.

Although the administration of immune serum globulin is of proved value in well-documented hypogammaglobulinemias, before recommending its use in borderline or mild hypogammaglobulinemia, a deficiency in antibody production should be clearly demonstrated. This can most readily be done by showing a lack of antibody response to two different antigens such as diphtheria and tetanus toxoids. Defective antibody production should also be demonstrated before immune serum globulin is given to patients with dysgammaglobulinemias unless very low levels of γG are present (less than 200 mg per 100 ml in young children or under 400 mg per 100 ml in older children and adults). The recommended dose for therapy and prophylaxis of antibody deficiency states is 1.5 ml per kg initially, followed by 0.66 ml per kg every 3 to 4 weeks.

Immune serum globulin may also be given (although its value has not clearly been shown) in an effort to prevent rubella in the first trimester of pregnancy, in the prevention of chicken pox in high risk patients such as children who are receiving steroid therapy or who have leukemia, and in the prophylaxis of serum hepatitis in high risk patients receiving blood transfusions. Patients at high risk for serum hepatitis include those with debilitating or chronic illnesses or anyone who receives blood or blood products strongly suspected or known to be infectious.

Hyperimmune serum globulins obtained from hyperimmunized or convalescing persons may be of use for specific diseases in which ordinary immune serum globulin is of doubtful value. They are available for mumps, pertussis, tetanus, and vaccinia. No prophylaxis is indicated for prepubertal children exposed to mumps, but mumps immune globulin may be used in exposed susceptible postpubertal males. Its value has not been well documented by controlled studies. The prompt administration of live attenuated mumps virus vaccine following exposure is preferable to giving mumps immune globulin.

Pertussis immune serum globulin may be used in doses of 1.5 ml in exposed infants under two years of age who have not been vaccinated. It may be repeated in five days if desired by the clinician.

Tetanus immune globulin should be used for unimmunized individuals with crushing injuries, burns, penetrating wounds and the like, in those who have had no tetanus toxoid injections for many years. Human tetanus immune globulin is given in a dose of 250 to 500 units intramuscularly. If human antitoxin is not available, equine tetanus antitoxin in a dose of 3,000 to 10,000 units may be given after testing for horse serum sensitivity. Human immune globulin is preferable in all instances in which it is obtainable.

Vaccinia immune globulin is useful in the prophylaxis and treatment of vaccinia of the eye, eczema vaccinatum, severe generalized vaccinia, or vaccinia necrosum. It may also be used in children who have extensive skin lesions including eczema, burns or impetigo and are accidentally exposed to vaccinia. Vaccinia immune globulin is not of value in the therapy of normal vaccination reactions and post vaccinal encephalitis, or for treatment of conditions such as chicken pox and herpes zoster. The prophylactic dose is 0.3 ml per kg of body weight.

There is no acceptable evidence that immune serum globulin is of value in the therapy of asthma or of recurrent infections not associated with documented hypogammaglobulinemia or a proved disorder in antibody production.

DOUGLAS C. HEINER, M.D.

REFERENCE

1970 Red Book. American Academy of Pediatrics Report of the Committee on Infectious Disease